

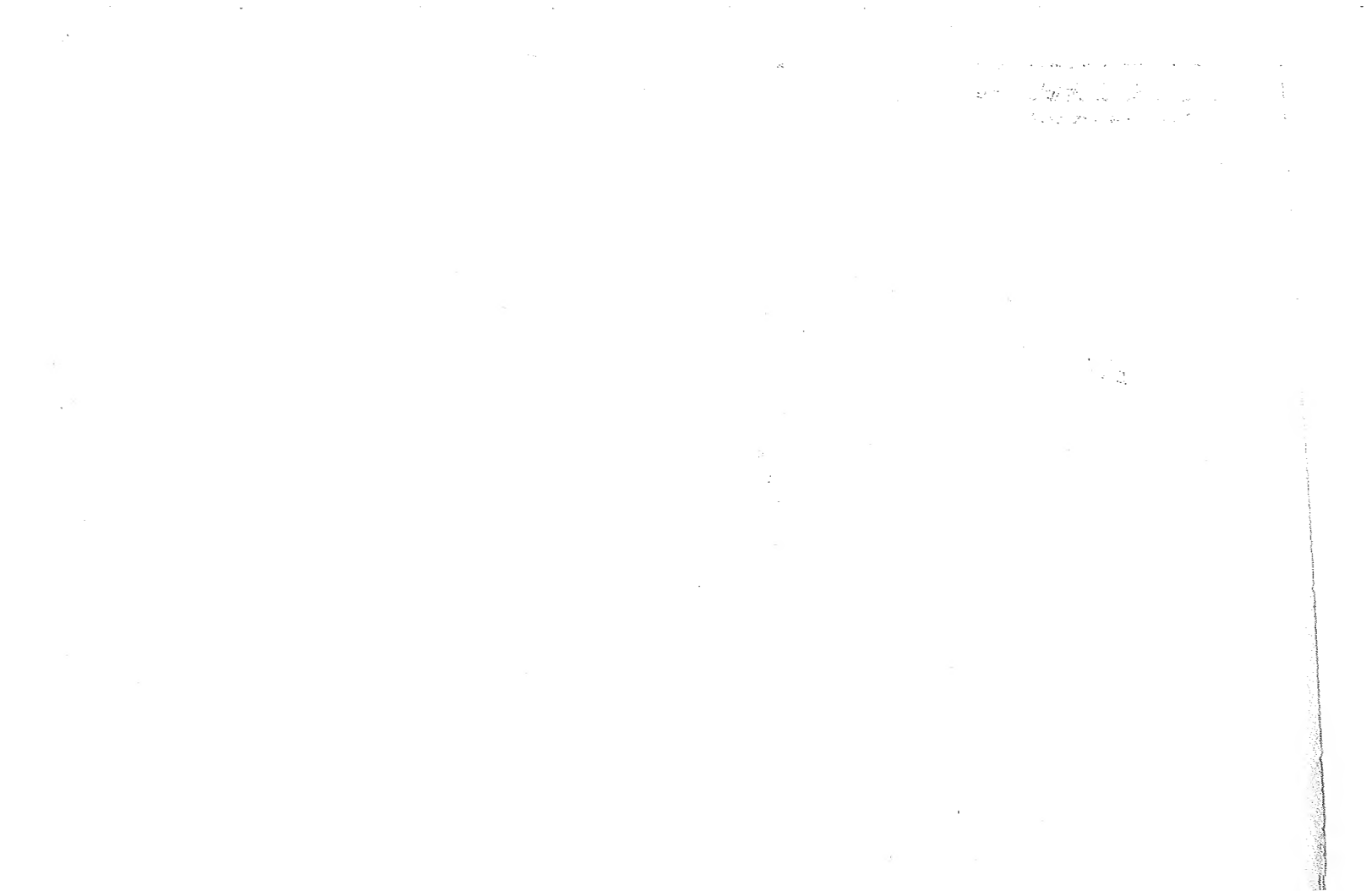
# Operator's Manual T811 — T816

Tractor  
1690704  
1690705

Mower  
1690708  
1690709

Part No. 1673889  
February 1984

 **ALLIS-CHALMERS**



**DEALER'S PRE-DELIVERY SERVICE GUIDE**

**DETAILS OF ITEMS LISTED BELOW ARE COVERED  
IN THIS MANUAL**

**CHECK BEFORE OPERATING UNIT**

- ☐ Shipping Damage Corrected
- ☐ Fill Battery with Electrolyte & Fully Charge
- ☐ Engine Oil Level Checked (Add When Needed)
- ☐ Hydrostatic Oil Level Checked
- ☐ Transmission Oil Level Checked
- ☐ Check & Tighten Steering Wheel

**OIL LEAKS**

- ☐ Tractor Operated
- ☐ Check for Oil Leaks After Engine Warms Up
- ☐ Check for Transmission Oil Leaks
- ☐ Check for Hydraulic Oil Leaks

**ENGINE**

- ☐ Check Timing
- ☐ Check High & Low Idle Speeds
- ☐ Check Governor Response
- ☐ Air Cleaner Properly Installed

**COOLING SYSTEM**

- ☐ Check Cooling Fins for Damage or Obstruction
- ☐ Check Engine Shrouds for Obstruction

**POWER TRAIN**

- ☐ Brake & Clutch Adjusted Properly
- ☐ All Belts Adjusted Properly
- ☐ Safety Switches Adjusted Properly
- ☐ P.T.O. Clutch Adjusted Properly
- ☐ Hydrostat Adjusted Properly
- ☐ Unit Operated Properly in all Gears

**GENERAL**

- ☐ All Grease Fittings Lubricated
- ☐ Front & Rear Tire Pressure Set
- ☐ Traction Operation Checked
- ☐ Appearance of Tractor Checked
- ☐ All Safety & Operational Decals in Place
- ☐ Operator's Manual with Tractors

**DEALER'S DELIVERY SERVICE GUIDE**

**EXPLAIN TO YOUR CUSTOMER THE CARE, SAFE  
OPERATION AND ADJUSTMENT OF ITEMS LISTED  
BELOW:**

☐ **CONTROLS****OPERATION**

- ☐ Starting Engine
- ☐ Stopping Engine
- ☐ Starting Tractor
- ☐ Stopping Tractor
- ☐ Operating with Mower and Other Implements

☐ **OPERATOR'S SAFETY PRECAUTIONS****LUBRICATION & SERVICE**

- ☐ Engine Oil
- ☐ Engine Fuel
- ☐ Transmission
- ☐ Grease Fittings
- ☐ Air Cleaner
- ☐ Engine Cooling Fins
- ☐ Battery Care
- ☐ Tire Pressure
- ☐ Service Parts
- ☐ Off-Season Storage

**ADJUSTMENTS**

- ☐ Seat
- ☐ P.T.O. Clutch
- ☐ Clutch & Brake
- ☐ Belts
- ☐ Mower
- ☐ Other Implements

### TO OUR CUSTOMER

The following pages and illustrations are printed to help supply you with the knowledge to better operate and service your new **ALLIS-CHALMERS** equipment.

We are proud to have you as a customer and feel you will be proud to be an **ALLIS-CHALMERS** owner.

Any piece of equipment needs, and must have a certain amount of service and maintenance to keep it in top running condition. We have attempted to cover all the adjustments required to fit most conditions; however, there may be times when special care must be taken to fit a condition.

**Study this operator's manual carefully and become acquainted with all the adjustments and operating procedures before attempting to operate your new equipment.** Remember, it is a machine and has been designed and tested to do an efficient job in most operating conditions and will perform in relation to the service it receives.

If special attention is required for some conditions, ask your **ALLIS-CHALMERS** Dealer; his Parts and Service Organization will be glad to help and answer any questions on operation and service of your new machine.



**ATTENTION! BECOME ALERT!  
YOUR SAFETY IS INVOLVED!**



This symbol is used to call your attention to safety precautions that should be followed by the operator to avoid accidents. When you see this symbol - Heed Its Warning.

## USER'S RESPONSIBILITY

It is the responsibility of the user to read the Operator's Manual and understand the safe and correct operating procedures as pertains to the operation of the product, and to lubricate and maintain the product according to the maintenance schedule in the Operator's Manual.

The user is responsible for inspecting his machine and for having parts repaired or replaced when continued use of the product would cause damage or excessive wear to other parts. It is the user's responsibility to deliver his machine to an Allis-Chalmers dealer, for service or replacement of defective parts which are covered by the standard warranty. When requesting warranty service, you must present your copy of delivery record.

If the Dealer is requested by the Customer to travel to another location, or haul the machine to his shop for the purpose of performing a warranty obligation or free inspection, it would be for the Customer's convenience, and the cost for such trips is to be paid for by the Customer. Any arrangement whereby the Dealer agrees to absorb all or a part of the cost of these trips is to be made between the Dealer and the Customer and is to be considered a courtesy to the Customer.

*Allis-Chalmers does not allow credit for the cost of travel time, mileage, or hauling as a warranty allowance.*

**WARRANTY . . .** Your Allis-Chalmers warranty for any new equipment listed appears on your copy of the Purchase Order signed by you and your selling dealer. You will be required to pay any premium for over-time labor requested by you, any charge for making service calls and for transporting the equipment to and from the place where warranty work is performed. Normal maintenance service and repair work not covered by the warranty during the warranty period and all service after the warranty period will be charged for at the dealer's regular rates and prices.

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## THE ALLIS-CHALMERS NEW EQUIPMENT BATTERY SERVICE ADJUSTMENT POLICY FOR LAWN AND GARDEN EQUIPMENT

### LIMITED WARRANTY

1. If within a period of 90 DAYS after day of sale to the original user, an Allis-Chalmers new equipment battery becomes unserviceable (not merely discharged) in normal use, due to defective material or workmanship, the Allis-Chalmers Corporation will replace it with an equivalent new Allis-Chalmers battery, without charge, to the original user.
2. If after the expiration of such 90 DAYS but before the expiration of 24 months from date of sale to the original user (each such month being designated herein as a unit of service) an Allis-Chalmers new equipment battery becomes unserviceable (not merely discharged) in normal use, due to defective material or workmanship, it will be replaced for the original user, in exchange for the unserviceable battery, with an equivalent new Allis-Chalmers battery at an adjusted price. This adjusted price shall be determined by applying to the then current retail price of the new battery, the percentage of the maximum (24) units of service which was received from the unserviceable battery.

### **LIMITATIONS**

No-charge replacements or adjustments under this policy may be made by any authorized Allis-Chalmers Lawn and Garden Equipment dealer.

This policy does not cover the following:


1. Unserviceability due to abuse or neglect, failure to maintain recommended electrolyte level, fire wreckage, explosion, freezing, the addition to the battery of any chemical or solution other than approved water or battery grade sulfuric acid of proper gravity, the use of a group size smaller than the group size of the original equipment battery, or continued operation of the battery in an undercharged condition (below half charge - 1.190 sp. gr.).
2. Breakage of containers, covers or posts.
3. The cost of transportation, service calls, recharges or the use of rental batteries.

PROOF OF DATE OF PURCHASE IS REQUIRED FOR ALL CLAIMS. ALLIS-CHALMERS CORPORATION WILL HAVE NO OBLIGATIONS UNDER THIS POLICY IF THE DATE CODING ON THE BATTERY IS REMOVED OR DESTROYED. IN NO EVENT WILL ALLIS-CHALMERS CORPORATION BE LIABLE FOR CONSEQUENTIAL DAMAGES.

L & G 7/75

# Safety Rules



*Read these safety rules and follow them closely. Failure to obey these rules could result in loss of control of vehicle, severe personal injury to yourself or bystanders, or damage to property or equipment. The triangle  in the text signifies important cautions or warnings which must be followed.*

## GENERAL

- Read the Operator's Manual carefully. Be thoroughly familiar with the controls and the proper use of the equipment.
- Never allow children to operate the machine. Do not allow adults to operate it without proper instruction.
- Do not carry passengers.
- Use only attachments or accessories designed for your machine. See your dealer for a complete list of recommended attachments or accessories.
- Keep the area of operation clear of all persons, particularly small children, and pets.
- Never direct discharge of material toward bystanders.
- Make sure:
  - a. tractor and attachments are in good operating condition,

- b. all safety devices and shields are in place and in good working condition, and
- c. all adjustments are correct.

## PREPARATION

- Handle gasoline with care - it is highly flammable.
  - a. Use approved gasoline container.
  - b. Never remove the fuel tank cap or add gasoline to a running or hot engine, or fill the fuel tank indoors. Wipe up spilled gasoline.
- Do not run the engine indoors. Exhaust fumes are deadly.
- Clear the work area of objects which might be picked up and thrown by attachments.
- Disengage all attachment clutches and shift into neutral before attempting to start the engine.

- Wear heavy footwear. Do not operate tractor when barefoot or when wearing open sandals or canvas shoes.

## OPERATION

- Disengage power to attachment(s), stop tractor engine, set parking brake, lower the attachment, and remove the key before leaving the operator's position for any reason, such as to unclog attachment chutes, or to make repairs or adjustments.
- Stop tractor and attachments and inspect for damage after striking a foreign object. Repair any damage before restarting and operating the equipment.
- Watch out for traffic when crossing or operating near roadways.
- Operate only in daylight or in good artificial light.
- Never make any adjustment while the engine is running.
- Operate only up and down the face of slopes; never across the face. Do not stop or start suddenly on slopes.

- Reduce speed on slopes and in sharp turns to prevent tipping or loss of control. Use extreme caution when changing direction on slopes.

- Be especially careful not to touch tractor and attachment parts which might be hot from operation. Allow such parts to cool before attempting to maintain, adjust, or service.

- Stay alert for holes in the terrain and other hidden hazards. Be especially careful when operating on wet or slippery surfaces.

- If equipment begins to vibrate abnormally, disengage power to attachments and stop engine at once. Inspect for damage and correct before starting up tractor.

- Use care when pulling loads or using heavy equipment.

- a. Use only drawbar hitch point.

- b. Limit loads to those you can safely control.

- c. Do not turn sharply. Use care when backing.

- d. Use weights when recommended in the tractor or attachment Operator's Manual.

- Disengage power to attachment(s) when transporting or not in use.

## **MAINTENANCE & STORAGE**

- Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.

- Do not change the engine governor settings or overspeed the engine.

- To reduce fire hazard, keep the engine free of grass, leaves, and excess grease.

- Never store the equipment with gasoline in the tank inside a building where fumes may reach an open flame or spark. Allow the engine to cool before storing in any enclosure.

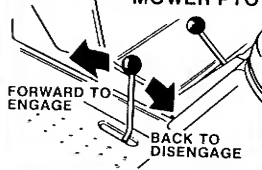


ALL WARNING, CAUTION, and instructional messages on your tractor and mower should be carefully read and obeyed. Personal bodily injury can result when these instructions are not followed. The information is for your safety and it is important. The safety messages on this page are on your tractor and mower.

## **DANGER**

1. Stand clear of discharge opening.
2. Do not operate mower without discharge deflector or entire grass collector system properly installed.

### **SNOW THROWER & MOWER PTO**



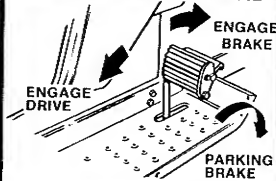
### **GEAR SHIFT PATTERN**



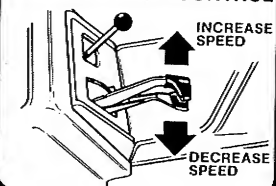
## **CAUTION**

- Before operating, read safety instructions in operator's manual.
  - Keep all shields in place.
  - Keep hands, feet, and clothing away from power driven parts.
  - Keep people and pets a safe distance away from machine.
  - For your safety, to start tractor transmission shift lever must be in neutral and PTO disengaged. Set parking brake.
- Before leaving operator's position:
- Disengage PTO.
  - Set parking brake.
  - Leave transmission in gear.
  - Shut off engine and remove key.

### **CLUTCH/BRAKE PEDAL**



### **VARIABLE SPEED CONTROL**



## **DANGER**

**keep hands & feet  
from under mower**

## **CAUTION**

- Depress clutch-brake pedal while shutting off engine.
- Do not operate variable speed control unless engine is running and tractor is in motion.

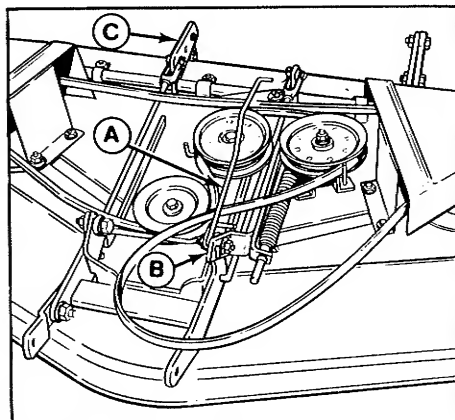


## WARNING

Stop engine, set parking brake, and remove key to prevent accidental starting. Never attempt to install or remove your mower when engine is running.

## INSTALLATION

1. Place the tractor and mower on a smooth, hard surface, such as concrete, with the mower on the right side of the tractor, and the hitch toward front of the tractor.
2. Notice that one end of the PTO rod (A, figure 1) does not have a drilled hole. Insert this end into the mower PTO arm (B) and work around until rod (A) appears as in figure 1.
3. Turn the front wheels of the tractor as far as they go to the left.
4. Lower the tractor lift lever. Place the mower in lowest cutting position using the mower height control lever.
5. Slide the mower under the tractor so



**Figure 1. PTO Rod**

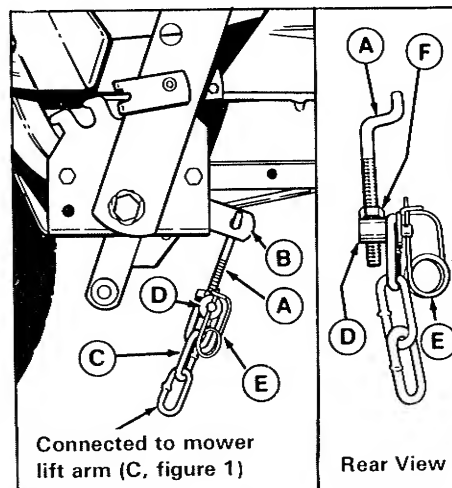
A. PTO Rod

B. Mower PTO Arm

C. Mower Lift Arm

that the mower lift arm (C, figure 1) is under the tractor lift arm (B, figure 2).

6. Connect the chain (C, figure 2) to the trunnion (D) with clip (E). (If optional electric lift is used, use only three links of chain).
7. Position the mower hitch arms (C, figure 3) so they are underneath the rear holes in tractor hitch (A, figure 4). Lift up one side of mower with both hands



**Figure 2. Lift Chain**

A. Lift Rod

B. Lift Arm

C. Chain

D. Trunnion

E. Clip

F. Nut

and align hole in mower hitch arm with rear hole in tractor hitch. When holes align, use one hand to insert a pin (B, figure 4) thru hitch. Go to the other side and insert the other pin. Install the two safety clips (C) in the pins.

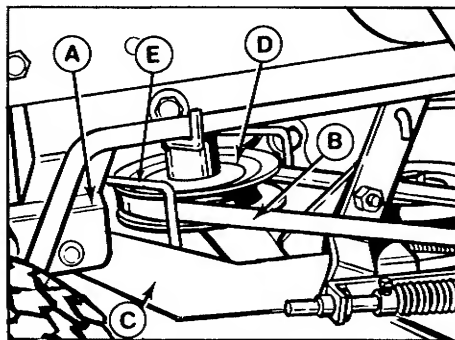


Figure 3. L.H. PTO Pulley Belt Stop

- A. Tractor Hitch                      D. PTO Pulley  
B. Belt                                  E. Belt Stop  
C. Mower Hitch Arm

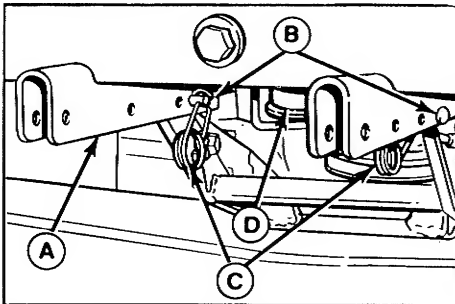


Figure 4. Mower Hitch Attached

- A. Tractor Hitch                      C. Safety Clips  
B. Pins                                  D. Drive Belt

8. Slip the mower drive belt onto the Engine PTO pulley (D, figure 3). Loosen the belt stops if necessary. The left-hand belt stop is item E in figure 3. The right-hand belt stop is item A in figure 5A.

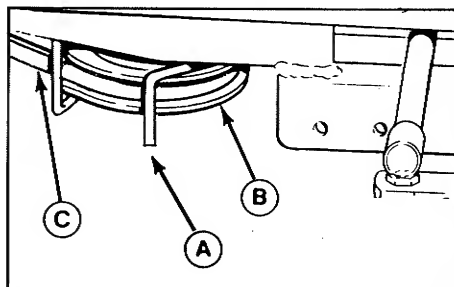


Figure 5A. R.H. PTO Pulley Belt Stop

- A. Belt Stop                      B. PTO Pulley                      C. Belt

9. Attach the PTO rod to the tractor PTO lever in hole marked "MOW" with the spring clip provided (figure 5B).
10. Check Mower Adjustments (page 27). Be sure to check belt stop adjustment if loosened in step 8. If installing for the first time, check Mower Levelling and Lift Lever in Adjustments section. If belt is new, check belt tension adjustment again after two hours of operation.

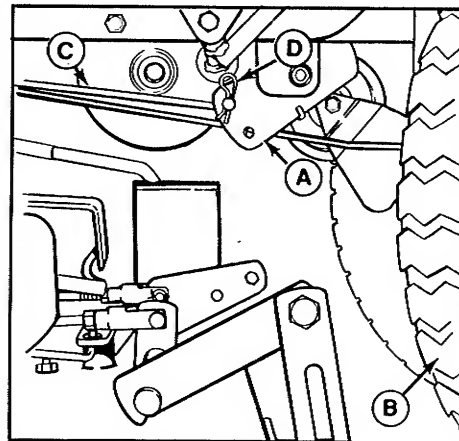


Figure 5B. PTO Rod

- A. PTO Lever                      C. PTO Rod  
B. Left Rear Tire                      D. Spring Clip

## REMOVAL

Reverse the procedure to remove the mower.



## WARNING

Take special care when working near the engine muffler. If it is hot from recent operation it can cause serious burns.

# Operation

## CONTROLS

Refer to figure 6 to identify the controls.

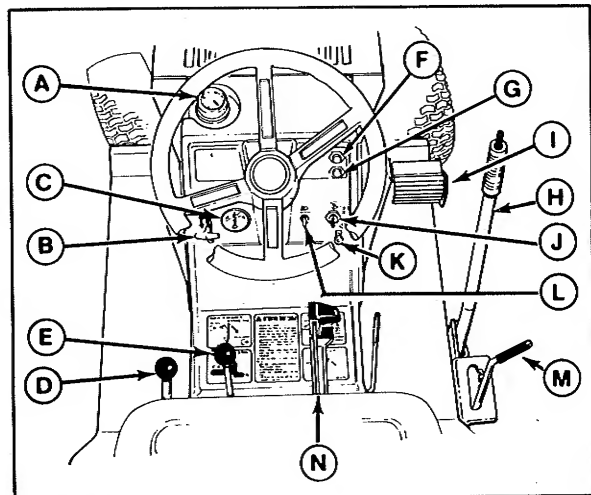


Figure 6. Controls

ITEM	NAME	FUNCTION
A	Gas Gauge/Cap	Shows the amount of gasoline in the tank & serves as gas tank cap.
B	Throttle Lever	Position from SLOW to FAST to adjust engine speed. (On 6211 lever also has position for engine choke.)
C	Ammeter	Shows when battery is being charged or discharged.
D	PTO (Power Take Off Lever)	Move the lever forward to engage power to the attachment. Move the lever back to disengage.
E	Gear Shift Lever	Shifts trans. gears to control ground speed. 3 speeds forward, 1 speed reverse. Neutral position for starting.
F	PTO Safety Interlock	Lights up when ignition switch is turned to START & PTO is disengaged. (PTO must be disengaged to start engine).
G	Trans. Safety Interlock Lamp	Lights up when ignition switch is turned to START position & gear shift lever is in NEUTRAL position. (Gear shift must be in NEUTRAL position to start engine).
H	Lift Lever	Lifts & holds the mower & other attachments in transport position.
I	Clutch/Brake Pedal	Lowens ground speed when depressed. Disengages clutch and applies brake when fully depressed. Sets parking brake when latched over end of footrest.
J	Ignition Switch	Operates with key to start, run or stop the engine.
K	Choke (6216 & 6218 only)	Aids in starting a cold engine.
L	Light Switch	Switches headlights on or off. (When engine is running.)
M	Height Control Lever	Adjusts mower cutting height.
N	Variable Speed Control	Controls ground speed in each gear. To increase speed, squeeze levers and pull up. To decrease speed, push lever down (do not squeeze levers).

## CHECKS BEFORE STARTING

Refer to the Normal Care Chart on page 10 and perform any needed care.

## STARTING THE ENGINE



### WARNING

Do not start or run engine in an enclosed area. Exhaust fumes are deadly.

1. Make sure the parking brake is set and the PTO is disengaged.
2. Place the gear shift lever in neutral. The engine will not start unless the PTO is disengaged and the gear shift lever is in NEUTRAL.
3. Choke the engine. To choke the T811, place the throttle lever in choke position. To choke the T816, pull out the choke knob. It may not be necessary to choke a warm engine.
4. Insert the key into the ignition switch and turn to START position. When the engine starts, release the key.
5. As the engine warms, move the throttle lever to SLOW on the T811 or push in

choke knob on the T816.

6. Allow the engine to warm up before engaging the PTO or driving the tractor. Do not idle engine for extended periods - it may cause carbon build-up.

## THE "TRACTOMATIC" DRIVE SYSTEM

The TRACTOMATIC drive system provides a variable speed range in each gear.

Ground speed is controlled with the gear shift lever and the variable speed control lever. Engine speed also affects ground speed, but is used mainly to control the drive speed of the attachment (mower, snow-thrower, etc.). To shift gears, the tractor must be stopped and the clutch-brake pedal fully depressed. While operating, the ground speed can be increased by moving the variable speed control lever up, or decreased by moving the lever down. Ground speed can also be decreased by depressing the clutch-brake pedal. When the pedal is released, the tractor will resume the speed set by the variable speed control lever.

For instance, when you approach a turn, you can slow down by depressing the pedal. When you are on the straightaway again, release the pedal to resume speed.

Which gear to use depends on the conditions (see Table 1). For operation on slopes, special precautions must be taken as described in the "Operation on Slopes" warning box on next page.

Gear	(MPH) Speed Range	Conditions
1	0.9 to 1.7	Slopes or rough ground; tall or thick grass.
2	2.4 to 4.4	Level terrain; light to moderate grass.
3	3.7 to 6.8	Transporting on level ground.

Table 1. Gear Selection

## SELECTING ENGINE SPEED

Most mowing is done with the engine speed control lever set between  $3/4$  and full throttle. Best results are often obtained at full throttle. If the grass is wet or high, select a slow ground speed, and use full engine speed.



## WARNING

### Operation on Slopes

Never operate on slopes greater than 30 percent (16.7°) which is a rise of three feet in a travel distance of ten feet. When operating on slopes that are greater than 15 percent (8.5°) but less than 30 percent use rear wheel weights (available from your dealer). A 15 percent slope is a rise of one and a half feet in a travel distance of ten feet.

Select a low gear and move the variable speed control lever to slow speed before driving onto any slope. Drive UP and DOWN the slope, never across the face. Use caution when changing directions and **DO NOT STOP OR START ON SLOPES.**



## CAUTION

Do not operate the variable speed control lever unless engine is running and tractor is in motion.

## STARTING AND STOPPING

1. Make sure the PTO is disengaged, transmission is in neutral and parking brake is set.
2. Start the engine.
3. Shift into the gear best suited for conditions.
4. For transporting, use the lift lever to raise the mower. For mowing, lower the lift lever. Select the desired mowing height using the height control lever. When the lift lever is raised and lowered, the mower will return to the height set by the height control lever.
5. If possible, the first motion should be straight forward or backward. Position the front wheels straight ahead.
6. When you are ready to mow, engage the PTO lever with moderate speed. Engaging too slowly may cause belt wear.
7. Place the throttle lever at half throttle.
8. Unlatch the clutch-brake pedal and slowly release to start tractor into motion. If tractor does not move, see item 6 in the Troubleshooting Chart, page 18.
9. Use the variable speed control lever to select a safe ground speed.
10. Move the throttle lever to desired engine speed.
11. To stop the tractor, depress the clutch-brake pedal fully.
12. Before leaving the tractor seat, do the following.
  - a. Disengage the PTO.
  - b. Set the parking brake.
  - c. Leave the transmission in gear.
  - d. Allow the engine to idle momentarily then turn the key to OFF. Remove the key to prevent unauthorized use of the tractor.



## WARNING

To reduce fire hazard, keep the engine tractor and mower free of trash, leaves and excess grease.



## WARNING

Never store the tractor where gasoline fumes can reach an open flame or spark.

**WARNING**

**Refer to your attachment Operator's Manual for special attachments. When mowing with a vacuum collector attachment, always use the front counterweight.**

**MOWING SUGGESTIONS**

When mowing for the first time, operate on a level surface at a slow ground speed until you become familiar with the controls and handling of the machine. Make sure mower is properly installed and adjustments are correct.

The size and type of area to be mowed determine the best mowing pattern to use. Obstructions such as trees, fences and building must also be considered. Where possible, make one or two passes in a clockwise direction around the outside of the area to keep cut grass off fences and walks. The remainder of the mowing should be done in a counterclockwise direction so the clippings are dispersed on the cut area.

On moderate size, frequently-mowed lawns where grass is light and dry, it is sometimes practical to mow in a clockwise direction so that clippings are thrown toward the center of the lawn and concentrated for pickup and removal.

Where possible, keep the left side of the mower toward trees, posts, or other obstacles on the first pass around the obstacles to keep hand trimming to a minimum.

Most lawns should be mowed to keep the grass approximately two to three inches (50 to 76 mm) high. Best results are obtained by cutting often and not too short. To help keep a green lawn, never mow more than one third off the height of the grass, or a maximum of one inch (25 mm), in one mowing.

On thick, or springy grass or soft ground, the mower rollers may sink into the ground giving too low a cut. Adjust the cutting height as necessary.

For best appearance, grass should be cut in the afternoon or early evening (in daylight) when it is free of external moisture.

Where possible, change patterns occasionally to eliminate matting, graining or a corrugated appearance.

## Normal Care



### WARNING

Stop engine, remove key, set parking brake, and wait for moving parts to stop before performing maintenance. Wait for engine to cool before working around engine.

### DETERMINING OPERATING TIME

Determining operating time is easily accomplished if the tractor is equipped with an optional hourmeter. If not, multiply the time it takes to do one job by the number of times you've done the job.

### NORMAL CARE SCHEDULE

A schedule for normal care is provided in Table 2.

### RAISING HOOD & SEAT DECK

To raise the hood, pull out on each side of the hood next to the dash and lift up. To raise the seat deck, press the two buttons (one on each side of seat) and tilt the seat deck back.

Care Required	See	Before First Use	Before Each Use	Every 5 Hours	Every 25 Hours	Every 100 Hours	Spring and Fall
Check gas gauge	P. 11	•	•				
Check tractor & mower for loose nuts, screws, bolts, oil leaks, etc.		•	•	•			
Check engine oil level	Engine Manual	•	•	•			
Check engine & air filter	Engine Manual				••		
Change engine oil *	Engine Manual				••		•••
Lubricate tractor & mower	P. 11	•			••		
Check fluid levels & tires	P. 13	•			••		
Check fuel filter	P. 13					••	
Clean battery & cables	P. 14					•	
Clean/sharpen blades	P. 14					••	
Inspect spark plug(s)	Engine Manual					•	
Check mower belt adj.	P. 28				•		
Check variator adj.	P. 26					••••	
*Change original engine oil after first 5 hours of operation. **More often in hot (over 85° F: 30° C) weather or dusty operating conditions. ***Only if tractor is used in both summer (over 40° F) and winter (under 40° F: 4.5° C). ****Check adjustment after first 25 hours of operation.							

Table 2. Schedule of Normal Care - Tractor & Mower.



## ADDING GASOLINE

Refer to the engine owner's manual for gasoline recommendations. Clean the area around the gas gauge/cap before unscrewing. Install hand-tight.

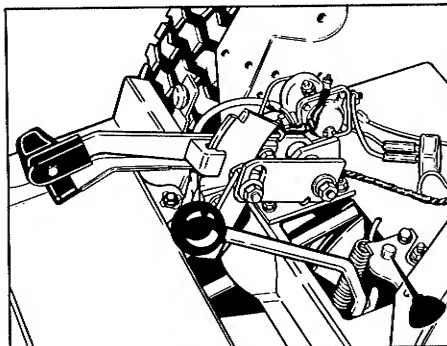


### WARNING

Never add gasoline when the engine is hot or running.

## TRACTOR AND MOWER LUBRICATION

1. Lubricate the tractor and mower as shown in figures 7 thru 13. Where an oil can is pictured, wipe the area clean, apply a few drops of medium weight (SAE 30) oil and then wipe up any drips or spills. Where a grease gun is pictured, wipe the fitting clean, apply two or three shots of lithium base automotive grease, then wipe off excess grease. Keep oil off belts and pulleys.
2. Once a year, clean and lubricate the variator pulley as described in steps "a" thru "i".



**Figure 7. Lubricate the Pivot Points of the Gear Shift Lever**

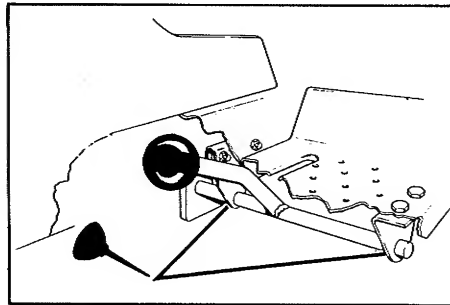
- a. Place the tractor on a level surface. Engage the parking brake.
- b. Slip the front belt off the variator pulley. (The variator pulley is item G, figure 20 on page 22).
- c. Release the parking brake.



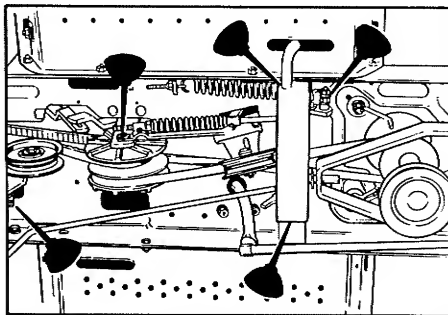
### WARNING

The rear idler pulley is spring loaded. When pulled downward in next step, it will tend to snap back up with force. Allow to go up slowly.

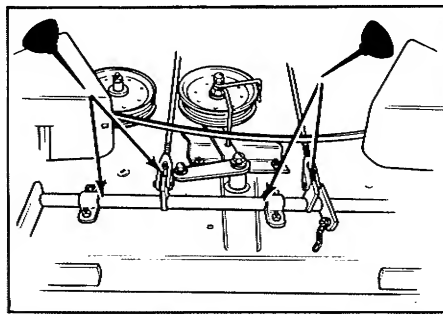
- d. Pull the rear idler pulley down and slip the belt off.
- e. Remove the rear belt from the transmission pulley, and then slip the rear belt off the variator pulley.
- f. Wipe the chrome, center spool of the variator pulley with a clean cloth. Move the center sheave (J, figure 20) to each side to expose the spool. Apply a light coat of oil to the spool. Place the center sheave back in original position.
- g. Wipe the sidewalls of the sheaves dry. These surfaces contact the belts, so they must be free of oil.
- h. Place the rear belt on the transmission pulley and then the variator pulley. Pull the rear idler pulley down and slip lower section of the belt on.
- i. Engage the parking brake. Place the front belt on the variator pulley. Check the belt patterns. See figure 19 on page 22.



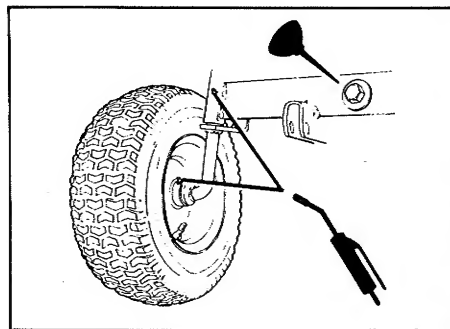
**Figure 8. Lubricate Pivot Points of PTO Lever**



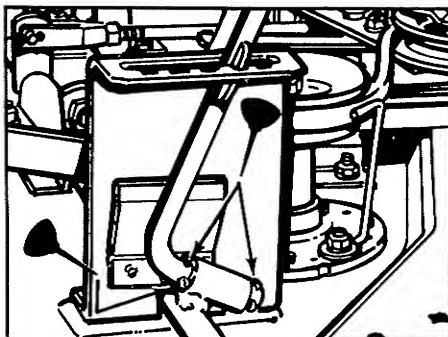
**Figure 10. Lubricate Pivot Points of Brake Pedal, Rod and Rear Idler Pulley Bracket**



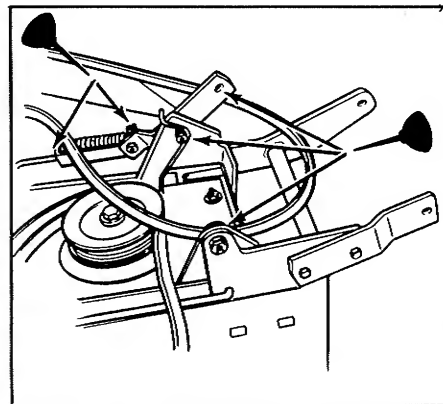
**Figure 12. Lubricate Clevises & Two Points Where Roller Bar Contacts Bracket.**



**Figure 9. Lubricate Two Grease Fittings on Each Side and Center Axle Bolt**



**Figure 11. Lubricate Height Control Lever & Point Where Roller Bar Contacts Bracket.**



**Figure 13. Lubricate Hitch, PTO Rod & PTO Arm.**

## FLUID LEVELS & TIRE PRESSURE

### NOTE

Wait at least ten minutes after operation before checking transmission oil level.

#### 1. Check transmission oil level as follows.

- a. Remove the transmission oil level check capscrew (A, figure 14).

- b. Oil should be level with bottom of hole. If not, remove the fill plug (C) and add Allis-Chalmers Power Fluid 821.

When level with check hole replace and retighten capscrew and fill plug. (Apply sealant to capscrew thread before reinstalling).

#### 2. Check battery fluid level as follows.

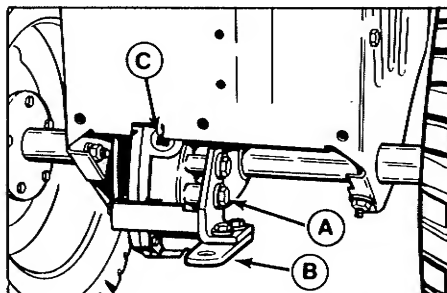
### NOTE

Auxiliary battery charging may be required if electric lift is operated continuously for long periods or in the winter when battery efficiency is low and tractor operation infrequent.

- a. Raise the seat.
- b. Remove filler caps, one at a time.
- c. Fluid must be even with split ring full mark (figure 15). If not, add distilled water.

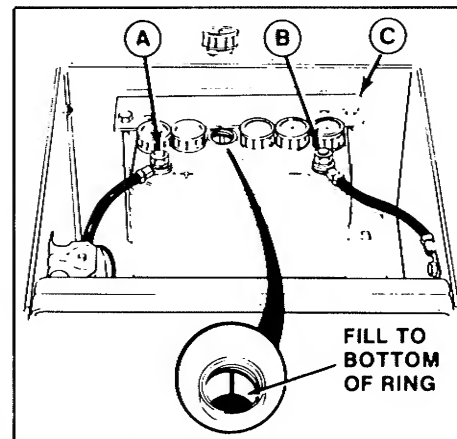
- d. Reinstall filler caps.

3. Check air pressure of all four tires. Front tires should be 12 to 15 psi. Rear tires should be 6 to 8 psi. For an accurate check, use a gauge with one-pound markings.



**Figure 14. Transmission Oil Level Check (Drawbar Removed)**

- A. Oil Level Check Capscrew
- B. Drain Plug (Sq. Hd.) (Not Visible)
- C. Fill Plug



**Figure 15. Battery Fluid Level**

- A. Positive Terminal
- B. Negative Terminal
- C. Battery Clamp

## FUEL FILTER REPLACEMENT



### WARNING

Do not remove fuel filter when engine is hot, as spilled gasoline may ignite. Do not spread hose clamps further than necessary. Insure clamps grip hose firmly over filter after installation.

If the filter is dirty or clogged, replace as follows. Place a container below filter to catch gasoline.

1. Using a pliers, open and slide hose clamps from fuel filter.
2. Remove hoses from filter.
3. Install new filter in proper flow direction in hoses. Secure by reclamping with hose clamps. See warning on page 13.

### CLEANING THE BATTERY & CABLES



#### WARNING

Always disconnect the negative cable **FIRST** and reconnect it **LAST**. The positive battery terminal can easily be shorted to the tractor frame by a wrench or other tool if this is not done. Use care not to short across battery terminals with tools.



#### WARNING

Be careful when handling the battery. Avoid spilling electrolyte. Keep flames and sparks away from the battery to avoid explosion.

1. Disconnect the cables from the battery, negative cable first (figure 15).
2. Remove the battery clamp, then remove the battery.
3. Scrub the battery, cable, and battery compartment with baking soda and water.
4. Clean the battery terminals and cable clamps with a wire brush.
5. Reinstall battery and clamp (figure 15).
6. Connect cables, positive cable first.
7. Coat cable clamps and terminals with grease or petroleum jelly.

### SHARPENING & BALANCING THE BLADES



#### WARNING

Do not handle the sharp mower blades with bare hands. Avoid touching the cutting edge. Improper handling of blades may result in serious injury. Use a box-end wrench of proper size.

1. Remove the mower from the tractor.
2. Position the mower as in figure 16.

Secure the mower so it will not fall or slide.

3. Remove any dirt or foreign matter from inside the mower deck and blade. Clean the blade mounting capscrew so that the wrench will seat fully and properly.
4. To remove the blade for sharpening, use a wooden block to hold blade while removing the capscrew (figure 16). Position the wrench as shown so that your hand will not fall onto the blade cutting edge if wrench slippage occurs.

USE PIN THROUGH HOLE  
IF ARBOR TURNS

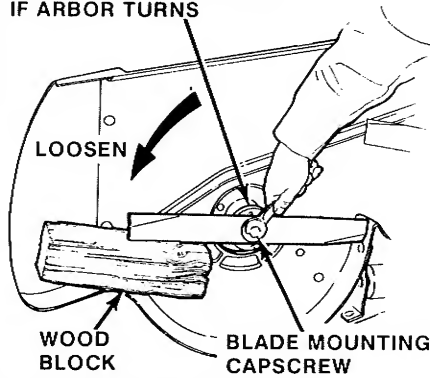


Figure 16. Removing Blade

5. Use a file to sharpen blade to fine edge. Remove all nicks and dents in blade edge. If blade is severely damaged, it should be replaced.
6. Check and balance blade. Use a balancing machine or the fixture shown in figure 17. File material off heavier end of blade until it is balanced.

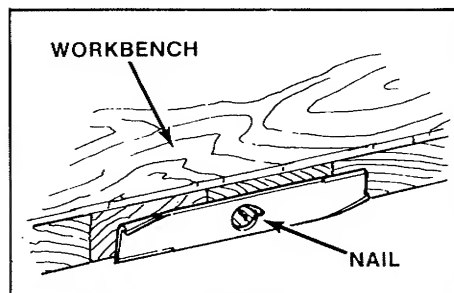


Figure 17. Balancing Blade



#### WARNING

Blade mounting capscrews must be installed with the cup washer and spline washer and then securely tightened as described in next step. Torque blade mounting capscrews to 50 ft. lbs. (68 N.m).

7. Reinstall each blade with the tabs pointing up toward deck and secure with a capscrew, cup washer, and spline washer. Be sure the splines on the spline washer are aligned with the shaft and the washer is flush against blade. Be sure cup washer is installed concave side up. Use a wooden block to prevent blade rotation and torque capscrew to 50 ft. lbs. (68 N.m) (figure 18).

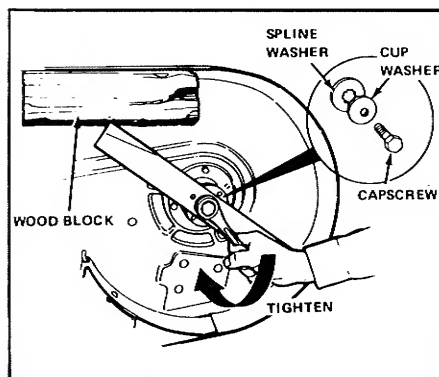


Figure 18. Installing Blade

## NORMAL STORAGE

Clean all grass and dirt from the mower. To protect your tractor, store it in an enclosed dry area. Do not store it in an enclosure where fumes from the fuel tank could reach an open flame without first running the fuel tank dry. Clean the seat with a vinyl cleaner.

To store your tractor in a cold area between winter snow removal jobs, we suggest that you fill the fuel tank at the completion of each job to prevent water condensation in the fuel tank.

## TRACTOR OFF-SEASON STORAGE

When the tractor is to be stored for two months or longer, take precautions as follows:



#### WARNING

Keep open flames or spark away from flammable gasoline when working near the fuel tank. Never store tractor where gasoline fumes reach an open flame or spark.

1. To empty or prepare fuel tank:
  - a. Run tractor engine until it stops

from lack of fuel, or;

- b. Use a gasoline stabilizer. This additive, available from your dealer, prevents formation of gum and varnish for up to one year. With the additive, fuel may remain in your tank for long periods.
2. Change engine oil while the engine is still warm. Record the type and weight of oil put in crankcase.
3. Remove spark plug(s). Pour one ounce (30 ml) of SAE 30 oil into engine through spark plug hole(s). Crank engine a few times to distribute oil and then reinstall the spark plug(s).
4. Lubricate tractor (see page 11).
5. Check battery fluid level (page 13). Battery life will be extended if it is removed and stored in a cool, dry place, fully charged.
6. Clean tractor thoroughly. Coat all exposed bare metal (where paint has been scratched) parts with a good quality paint (obtainable from your dealer) or a light film of grease or oil. Keep oil off belts and pulleys.

### STARTING AFTER STORAGE

1. Reinstall battery, if removed. Be sure terminals and clamps are clean (see page 14).
2. Remove spark plugs and wipe dry. Crank engine a few times to blow excess oil out of plug holes. Then reinstall the plugs.
3. Fill fuel tank with fresh gasoline (unless a fuel stabilizer was used).
4. Clean engine fins and air filter. (See engine manual).
5. Check fluid levels and tire pressure. (See page 13).
6. Start the engine outdoors. Do not run engine at high speeds immediately after starting.

### MOWER OFF-SEASON STORAGE

To protect your mower, store it in an enclosed dry area. To prepare the mower for off-season storage perform the following.

1. Remove mower from tractor. (See Mower Installation and Removal section.)

2. Clean top and underside of mower to remove all grass and dirt.
3. Coat all bare metal surfaces (where paint has been scratched) with a good quality paint (available from your dealer) or a light coat of oil to prevent rusting.
4. Lubricate mower (page 11).
5. Check, sharpen and balance the mower blades (page 14).
6. The belt should be in a cool, dark place away from a heat source or sunlight. It can be left on the mower. If you wish to hang the belt on a wall, hang it from multiple hooks.

# Troubleshooting & Repair

## CONTENT OF SECTION

This section of the manual provides troubleshooting and repair instructions for the more common and easily corrected problems. For other problems, it is recommended that you contact your dealer.



### WARNING

Perform maintenance on the tractor or mower only when the engine is stopped and the parking brake engaged. Always remove the ignition key and disconnect spark plug wire before beginning the maintenance to prevent accidental starting of the engine.

## TROUBLESHOOTING PROCEDURES

Troubleshooting procedures are provided in Table 3. To use these procedures, first locate the problem description that best describes the trouble that you have encountered. Check the possible causes one at a time in the order that they are listed.

Problem	Cause/Remedy
1. Engine will not start.	<p>A. Gear shift lever not in neutral-start position. Check safety interlock lights. Shift into neutral.</p> <p>B. PTO clutch lever not disengaged. Check safety interlock lights. Disengage fully.</p> <p>C. Out of fuel. Refill fuel tank.</p> <p>D. Engine flooded. Push choke knob in (16 HP) or move control out of choke (11 HP).</p> <p>E. Circuit breaker tripped. Wait one minute for automatic reset. Replace if defective (see your dealer).</p> <p>F. Battery terminals require cleaning. See Normal Care section.</p> <p>G. Battery discharged or dead. Recharge or replace.</p> <p>H. Wiring loose or broken. Visually check wiring &amp; replace broken or frayed wires. Tighten loose connections.</p> <p>I. Solenoid or starter motor faulty. Repair or replace.</p> <p>J. Safety interlock switch faulty. Replace if needed. (See your dealer.)</p> <p>K. Spark plug or points faulty, fouled, or incorrectly gapped. Clean &amp; gap or replace.</p> <p>L. Water in fuel. Drain fuel &amp; refill with fresh fuel.</p> <p>M. Old stale gas. Drain fuel &amp; replace with fresh fuel.</p>

Table 3. Troubleshooting

Problem	Cause/Remedy
2. Engine starts hard or runs poorly.	<p>A. Fuel mixture too rich. Disengage engine CHOKE. If problem still exists, clean air filter.</p> <p>B. Carburetor adjusted incorrectly. See your engine manual.</p> <p>C. Spark plug or points faulty, fouled, or incorrectly gapped. Clean and gap or replace.</p>
3. Engine knocks.	<p>A. Low oil level. Check/add oil as required.</p> <p>B. Using wrong grade oil. See Normal Care section.</p>
4. Excessive oil consumption.	<p>A. Engine running too hot. Clean engine fins, blower screen and air cleaner. See Normal Care section.</p> <p>B. Using wrong weight of oil. See Normal Care section.</p> <p>C. Too much oil in crankcase. Drain excessive oil.</p>
5. Engine exhaust is black or smokey.	<p>A. Dirty air filter. Clean air filter.</p> <p>B. Choke does not open when knob is pushed in (16 HP) or throttle is moved out of CHOKE position (11 HP).</p>
6. Engine runs, but tractor will not drive or lacks power.	<p>A. Transmission not in gear. Shift into gear.</p> <p>B. Drive belt slips. (See problem and cause below.)</p> <p>C. Variable speed control lever has been moved from high to low range with engine stopped or with clutch-brake pedal depressed. Start engine and with clutch-brake pedal depressed move variable speed control up to high range position. Release pedal to start into motion.</p>
7. Drive belts slip.	<p>A. Clutch is out of adjustment. See Adjustment section.</p> <p>B. Pulleys or belt greasy or oily. Clean as required.</p> <p>C. Belt stretched or worn. Replace with correct belt.</p>

Table 3. Troubleshooting (Cont'd)



Problem	Cause/Remedy
8. Brake will not hold.	<p>A. Brake is incorrectly adjusted. See Adjustment section.</p> <p>B. Brake lining worn and requires replacement. See your dealer.</p>
9. Tractor handles poorly.	<p>A. Steering linkage is loose. Check and tighten any loose connections.</p> <p>B. Improper tire inflation. Check and correct (see page 13).</p> <p>C. Wheels are spinning and slipping. Use weights to provide additional stability and traction.</p> <p>D. Moving too fast on slopes. Reduce speed.</p>
10. Variable speed control lever or clutch does not operate properly.	<p>A. Variator pulley needs lubrication. See Tractor Lubrication.</p> <p>B. See Variator/Clutch Adjustment in Adjustments section.</p> <p>C. Slow or partial variator response. See Spring Adjustment (page 27).</p>
<b>TROUBLESHOOTING (MOWER)</b>	
1. Mower will not raise.	<p>A. Lift chain not attached or broken. Attach or repair.</p>
2. Mower cut is uneven.	<p>A. Mower not leveled properly See leveling adjustment in mower adjustment section.</p> <p>B. Tractor tires not inflated equally or properly. See page 13.</p>
3. Mower cut is rough looking.	<p>A. Engine speed too slow. Set for three-fourths to full speed.</p> <p>B. Tractor ground speed too fast. Use lower gear.</p> <p>C. Blades dull and require sharpening. See Normal Care section.</p> <p>D. Mower drive belt slipping. Belt oily or worn. Clean or replace belt as necessary. Readjust belt tension.</p>

Table 3. Troubleshooting (Cont'd)

Problem	Cause/Remedy
<b>4. Engine stalls easily with mower engaged.</b>	<b>A.</b> Tractor ground speed too fast. Use lower ger.
	<b>B.</b> Engine speed too slow. Set for three-fourths to full speed.
	<b>C.</b> Cutting height set too low when mowing tall grass. Cut tall grass at maximum cutting height during first pass.
	<b>D.</b> Discharge chute jamming with cut grass. Cut grass with discharge pointing toward previously cut area.
<b>5. Excessive mower vibration.</b>	<b>A.</b> Blade mounting screws are loose. Torque to 50 Ft. Lbs. (68 N.m). See Normal Care section.
	<b>B.</b> Mower blades, arbors, or pulleys are bent. Check and replace as necessary.
	<b>C.</b> Mower blades are out of balance. Remove, sharpen, and balance blades (see Normal Care section).
<b>6. Excessive belt breakage.</b>	<b>A.</b> Belt tension too tight. Readjust belt tension.
	<b>B.</b> Bent or rough pulleys. Repair or replace.
	<b>C.</b> Using incorrect belt. See your dealer.
<b>7. Mower drive belt slips or fails to drive.</b>	<b>A.</b> Mower drive belt out of adjustment. See Adjustment section.
	<b>B.</b> Mower drive belt broken. Replace belt.

## BATTERY INSPECTION/REPLACEMENT

### NOTE

Auxiliary battery charging may be required if electric lift is operated continuously for long periods or in the winter when battery efficiency is low and tractor operation infrequent.

If the battery is too weak to start the engine, it may not need to be replaced. Check the fluid level, and clean the terminals as described in "Cleaning the Battery Cables". If the battery lost its charge due to prolonged storage, poor connections, or defective charging circuit, have the battery recharged by your dealer (maximum charge rate: 6 amps). If there is any doubt about the cause of the problem, see your dealer. To remove the battery, disconnect the cables (negative cable first) and remove the battery clamp. To install a new battery, connect the cables negative cable last and install the battery clamps.

Table 3. Troubleshooting (Cont'd)



# **WARNING**

Use extreme care when jump starting. Never expose battery to open flame or electric spark - battery action generates hydrogen gas which is flammable and explosive. Do not allow battery acid to contact skin, eyes, fabrics, or painted surfaces. Batteries contain a sulfuric acid solution which can cause serious injury or property damage.

## **JUMP STARTING WITH AUXILIARY (BOOSTER) BATTERY**

Jump starting is not recommended. Recharging the dead battery is preferred. However, if jump starting must be done, follow these directions. Both booster and discharged batteries should be treated carefully when using jumper cables. Follow exactly the following procedure, being careful not to cause sparks.

1. Set parking brake and place transmission in "NEUTRAL". Turn off lights and other electrical loads.
2. Remove vent caps from both the booster and the discharged batteries. Lay a

cloth over the open vent wells on each battery. These two actions help reduce the explosion hazard always present in either battery when connecting a "live" battery to a "dead" battery.

3. Attach one end of one jumper cable to the positive terminal of the booster battery (identified by a red color, "+" or "P" on the battery case, post or clamp) and the other end of same cable to positive terminal of discharged battery. DO NOT permit vehicles to touch each other, as this could establish a ground connection.
4. Attach one end of the remaining cable to the negative terminal (black color, "-" or "N") of the booster battery, and the other end to a bare metal surface on the frame of your tractor AWAY FROM the battery compartment (do not connect directly to negative post of dead battery). Take care that clamps from one cable do not inadvertently touch the clamps on the other cable. Do not lean over the battery when making this connection.
5. The tractor with the discharged battery should now start.

Reverse the jump starting procedure exactly to remove the jumper cables. Then reinstall the vent caps and throw the cloths away as they may have corrosive acid on them.



# **WARNING**

Any procedure other than the above could result in: (1) personal injury caused by electrolyte squirting out of the battery vents, (2) personal injury or property damage due to battery explosion, (3) damage to the charging system of the booster vehicle or of the immobilized vehicle.

Do not attempt to jump start a vehicle having a frozen battery because the battery may rupture or explode. If a frozen battery is suspected, examine all fill vents of the battery. If ice can be seen or if the electrolyte fluid cannot be seen, do not attempt to start with jumper cables as long as the battery remains frozen.

## TRACTOR BELT REPLACEMENT

1. Place the tractor on a level surface.
2. Place the gear shift lever in neutral.  
Release the parking brake.



### WARNING

The rear idler pulley is spring loaded. When pulled down in next step, it will tend to snap back up with force. Allow to go up slowly.

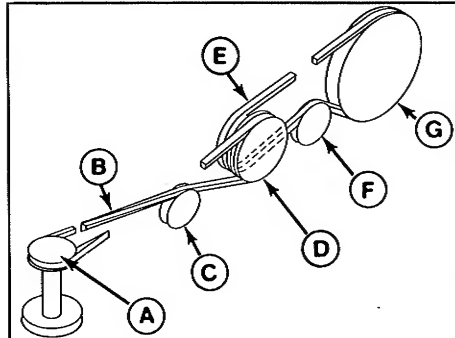


Figure 19. Belt Diagram

- A. Engine Pulley
- B. Belt, Engine to Variator Pulley
- C. Front Idler Pulley
- D. Variator Pulley
- E. Belt, Variator Pulley to Transmission
- F. Rear Idler Pulley
- G. Transmission Pulley

3. Pull downward on the rear idler pulley (I, figure 20) and slip the rear belt (H) off.
4. Set the parking brake.
5. Slip the front belt (D) off the variator pulley (G).
6. Loosen up the idler pulley (E) mounting hardware enough so the belt can be slipped from the pulley and belt stop and slip the belt off.
7. Slip the belt off the engine pulley (A) loosening the belt stops (C) as necessary. Pull the belt down off the PTO pulley (B), and remove from the tractor.
8. Release the parking brake.
9. Slip the rear belt (H) off the variator pulley (G). Remove the belt from the transmission pulley (F) by pulling lower section toward transmission pulley and

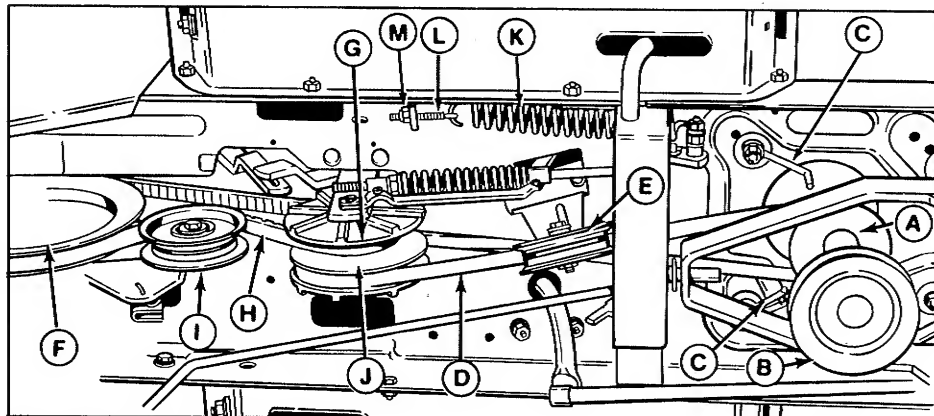


Figure 20. Belt Replacement

- A. Engine Pulley
- B. PTO Pulley
- C. Belt Stops
- D. Front Belt
- E. Front Idler Pulley
- F. Transmission Pulley
- G. Variator Pulley
- H. Rear Belt
- I. Rear Idler Pulley
- J. Center Sheave
- K. Spring
- L. Eyebolt
- M. Nut

pulling belt out of the groove from the bottom around to the top. Remove the belt from the tractor.

10. Slip the new rear belt onto the transmission pulley and variator pulley.
11. Pull the rear idler pulley down, and slip the lower belt section on top of the pulley. See the belt diagram (figure 19).
12. Set the parking brake.
13. Place the front belt onto the engine pulley.
14. Place the back side of the belt onto the front idler pulley and the V side of the belt in the variator pulley groove. Refer to the belt diagram (figure 19).
15. Tighten the front idler pulley hardware, making sure the belt stop is in original position.
16. Check Variable Speed Control/Clutch Adjustment, page 26.

#### MOWER DRIVE BELT REPLACEMENT 42" & 48" Mowers

1. Remove the mower from the tractor.
2. Loosen the left belt stop (H, figure 21) enough to slip the belt off the pulley. Remove the right belt stop (D).

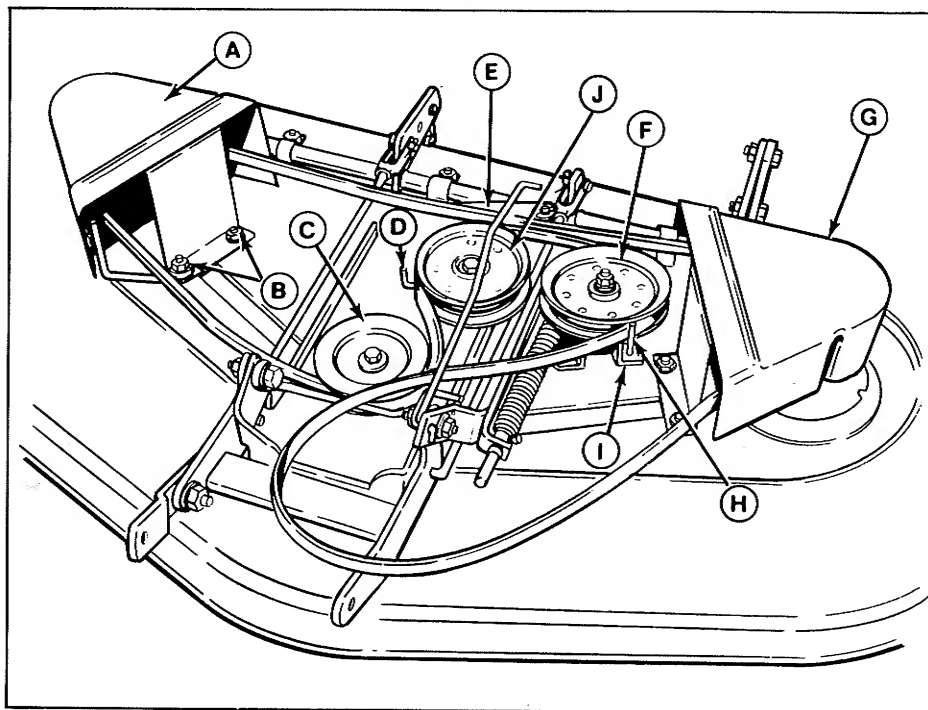


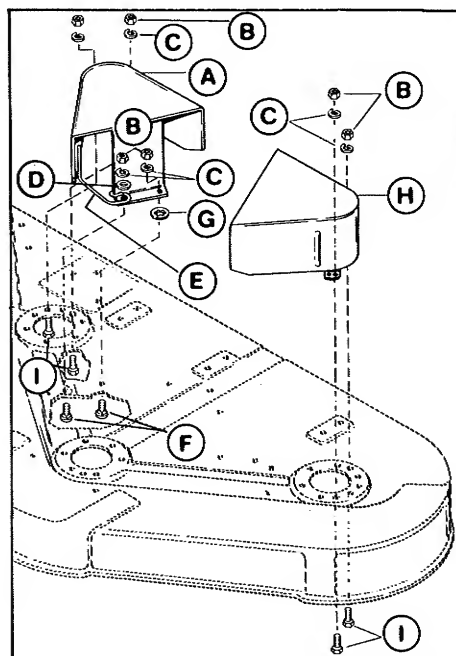
Figure 21. Mower Belt Replacement

A. Right Arbor Cover  
B. Nut, Arbor Cover  
C. V-Pulley, Front Arbor

D. Right Belt Stop  
E. Idler Pivot Bracket  
F. Flat-Side Idler Pulley

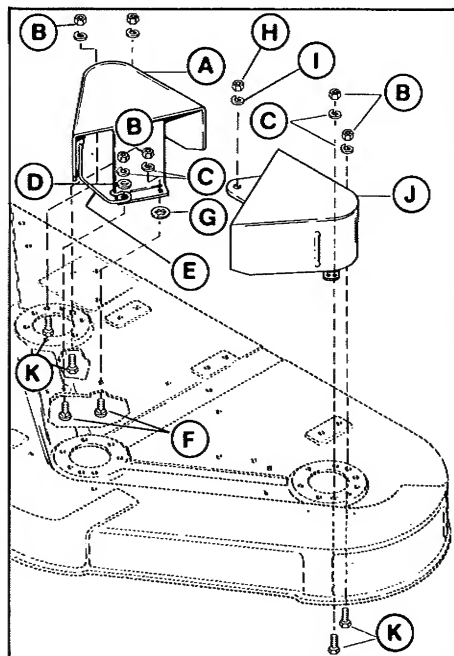
G. Left Arbor Cover  
H. Left Belt Stop  
I. Idler Support  
J. Flat-Side Idler Pulley

3. For the 42" mower, go to step 4. for the 48" mower, go to step 5. Before removing the arbor covers take note of which holes in the housing are used for the mounting hardware.
4. **42" mower only.** Remove the right arbor cover by removing two carriage bolts in front and two capscrews in rear (see figure 23). Remove the nut (H) and lockwasher (I) which secure left arbor cover to the idler pulley. Remove the two capscrews (K) and attaching hardware of the left arbor cover.
5. **48" mower only.** Remove both arbor covers by removing two carriage bolts in front and two capscrews in back. See figure 22. Remove attaching hardware.
6. Remove the old belt.
7. Install the new belt on the pulleys. The belt pattern is shown in figure 24. Notice that the "V" side of the belt drives the V-pulleys and flat side of belt rides on the flat idler pulleys. Be sure there are not twists in the belt. Reinstall and tighten the belt stops.
8. Reinstall the arbor covers and shown in figure 22 or 23.



**Figure 22. Arbor Covers - 48" Mowers**

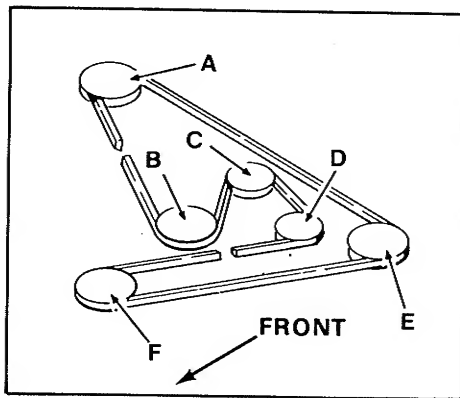
- |                       |                      |
|-----------------------|----------------------|
| A. Arbor Cover, Right | G. Nut, Cage         |
| B. Nut                | H. Arbor Cover, Left |
| C. Lockwasher         | I. Capscrew          |
| D. Plain Washer       |                      |
| E. Belt Stop          |                      |
| F. Bolt, Carriage     |                      |



**Figure 23. Arbor Covers - 42" Mowers**

- |                       |                      |
|-----------------------|----------------------|
| A. Arbor Cover, Right | G. Nut, Cage         |
| B. Nut                | H. Nut               |
| C. Lockwasher         | I. Lockwasher        |
| D. Plain Washer       | J. Arbor Cover, Left |
| E. Belt Stop          | K. Capscrew          |
| F. Bolt, Carriage     |                      |

9. Reinstall the mower on the tractor (see Mower Installation). Check mower drive belt tension and belt stop adjustments as described in Adjustments section. Run the mower for about five minutes and recheck mower drive belt adjustment.



**Figure 24. Mower Belt Pattern**

- A. V-Pulley, Right Arbor
- B. V-Pulley, Front Arbor
- C. Flat Idler Pulley
- D. Flat Idler Pulley
- E. V-Pulley, Left Arbor
- F. Engine PTO Pulley

## Adjustments

### VARIABLE SPEED CONTROL/ CLUTCH ADJUSTMENT

1. Place the tractor on a level surface.
2. Place the speed control lever in full speed position (all the way up).
3. Raise the seat deck.
4. Loosen the shoulder bolt (A, figure 25) so it is free to slide in the slot.

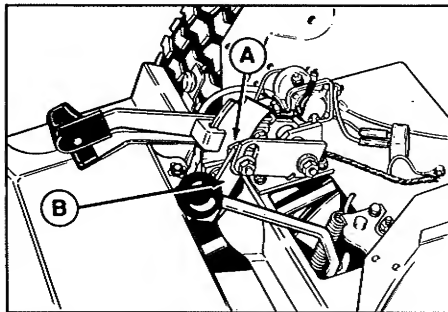


Figure 25. Speed Control Lever

A. Shoulder Bolt      B. Bar

5. Lower the seat deck and seat yourself in operating position.
6. Place the transmission in neutral and release the parking brake.
7. Start the engine. Press the pedal down

and set the parking brake while the engine is running.

8. Stop the engine. Unlatch the pedal and allow the pedal to come up slowly.
9. Dismount from the tractor.
10. Measure the distance from the pedal shaft to the forward edge of the footrest as shown in figure 26. If it measures 5-1/2 inches (140 mm), go on to step 11. If not, tighten the nut (A, figure 27) toward the spring to increase the measurement or loosen the nut to decrease the measurement. Recheck the measurement and adjust the nut as necessary to achieve the correct measurement.

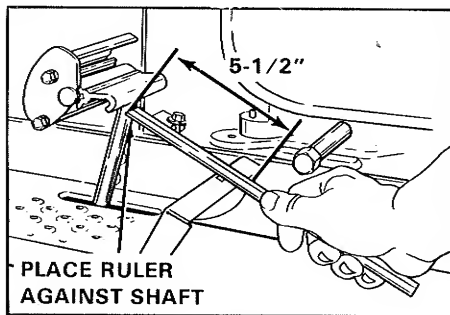


Figure 26. Pedal to Footrest  
Measurement

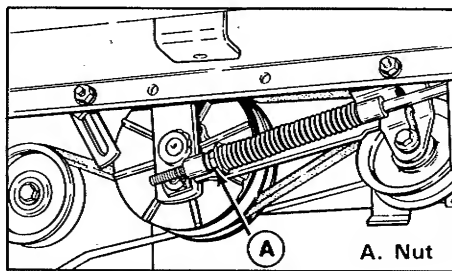


Figure 27. Adjustment Nut

11. Place the speed control lever all the way down in low speed position. Then grasp only the upper handle as shown in figure 28 and pull up firmly to lock the lever in position (use 35 to 40 lbs. of force).

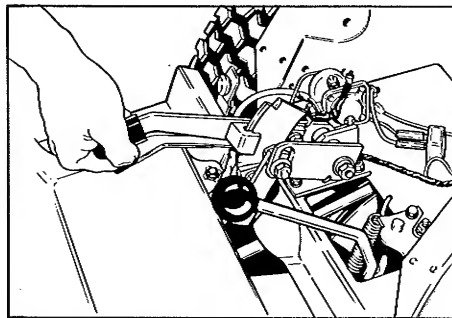
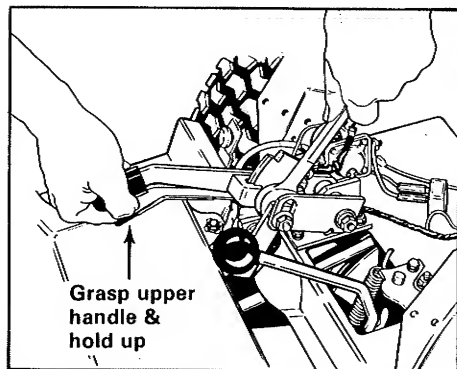


Figure 28. Grasping Upper Handle



12. Place your finger on top of the bar (B, figure 25) and push the bar down until it stops.
13. Tighten the shoulder bolt while holding the control lever up firmly as shown in figure 29. If the lever moves down at all while retightening, loosen the shoulder bolt and go back to step 11.
14. Perform brake adjustment.

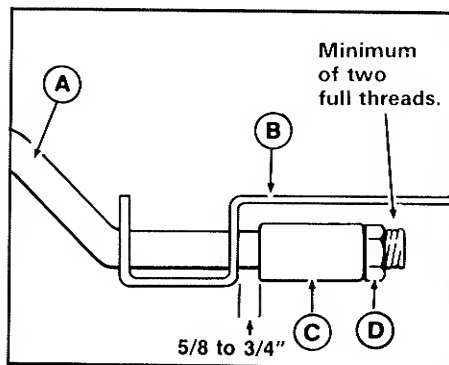


**Figure 29. Tightening the Shoulder Bolt**

### **BRAKE ADJUSTMENT**

1. Place the tractor on a level surface. Make sure the gear shift lever is in neutral position. Release the parking brake.

2. Start the engine. Move the variable speed control lever up to full speed position, then stop the engine.
3. Place the gear shift lever into gear without depressing the clutch/brake pedal. It may be necessary to rock the tractor back and forward slightly to shift into gear.
4. Locate the brake band (figure 30) which is located to the inside of left-rear tire.
5. Pull forward on the brake band to take out any slack.



**Figure 30. Brake Adjustment**

- |               |           |
|---------------|-----------|
| A. Brake Rod  | C. Spacer |
| B. Brake Band | D. Nut    |

6. Measure the gap between the spacer and the brake band (figure 30). The gap should measure between 5/8 inch and 3/4 inch (16 to 19 mm). If not, loosen or tighten the brake rod nut (D) to achieve measurement. For safety, a minimum of two full threads must extend thru the nut.

### **SPRING ADJUSTMENT**

The tension of the spring (K, figure 20) is a factor in variator responsiveness. To increase variator response time (slow to fast range), increase spring tension by tightening the nut while holding the eyebolt. Tension may need to be increased due to belt wear.

### **MOWER ADJUSTMENTS**

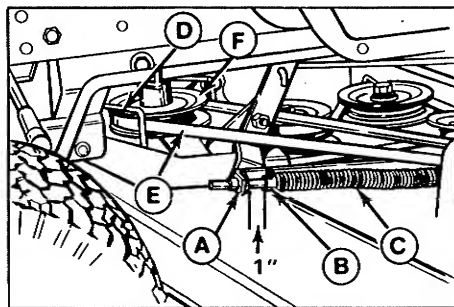
#### **Mower Drive Belt Tension Adjustment - All Models**

If the mower belt slips or fails to drive, the mower belt tension may need adjustment. To check, proceed as follows.

1. Place the mower in high cut, using height control lever. Place the PTO lever in engaged position.

## Adjustments

2. Measure the distance between the PTO rod guide (A, figure 31) and the set collar (B). The distance should measure one inch. If not, proceed to step 3.
3. Place the PTO lever in disengaged position.
4. Loosen the setscrew in the set collar (B). Move the rod forward to increase gap, or backward to decrease gap. Retighten the setscrew.



**Figure 31. Mower Drive Belt Tension Adjustment - 42" & 48"**

- |                  |                      |
|------------------|----------------------|
| A. PTO Rod Guide | D. Belt Stop         |
| B. Set Collar    | E. Drive Belt        |
| C. Spring        | F. Engine PTO Pulley |

5. Engage the PTO lever and recheck the measurement. Repeat the adjustment

as necessary until the distance measures one inch with the PTO lever in engaged position.

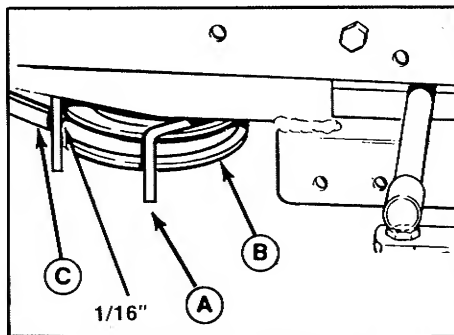
6. Check the adjustments of the PTO pulley belt stop and the left idler pulley belt stop.

### PTO Pulley Belt Stops Adjustment - All Models

There are two belt stops at the PTO pulley; one on the left (D, figure 31) and one on the right (A, figure 32). With the PTO lever engaged, measure the distance between the belt stop and belt. There should be 1/16 inch (1.5 mm) clearance between each belt stop and the belt. To adjust a belt stop, loosen its mounting capscrew, move the belt stop, and retighten the capscrew. Recheck the measurement.

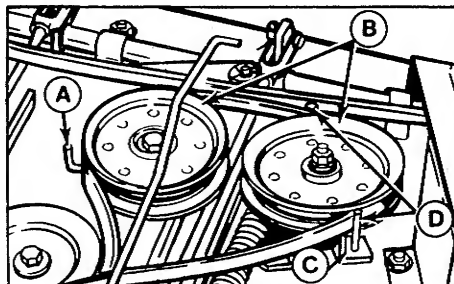
### LEFT IDLER PULLEY BELT STOP

Make sure the belt stop (D, figure 33) is level with the pulley. If the belt stop is level, each side will be an equal distance from the belt. To reposition the belt stop, loosen the mounting capscrew on the bracket underneath the pulley. Retighten hardware securely.



**Figure 32. Right-Hand PTO Pulley Belt Stop**

- |               |         |
|---------------|---------|
| A. Belt Stop  | C. Belt |
| B. PTO Pulley |         |



**Figure 33. Mower Belt Stops**

- |                    |                         |
|--------------------|-------------------------|
| A. Right Belt Stop | C. Idler Pulley Bracket |
| B. Idler Pulleys   | D. Left Belt Stop       |

## Mower Levelling, Side-To-Side

## NOTE

The purpose of levelling the mower is to achieve an even grass cut. Remember that improper or unequal tire pressure will cause an uneven cut. Also, different terrains may require different side-to-side adjustments. If you don't achieve an even cut with the mower level, try raising one side slightly higher.



## WARNING

To avoid accidental starting during levelling check, remove the ignition key and remove spark plug wire(s) and fasten them away from the spark plug(s).

## NOTE

Tractor and mower must be on a level surface. The front tires should point straight forward.

1. To check for side-to-side levelness on the mower, disengage the mower clutch and position the blades so they are pointing side-to-side.

2. Engage the clutch.
3. Measure the distance from the outside tips of the blade to the ground. If the difference between the two measurements is less than 1/8 inch (3 mm), the mower is level. If not, proceed with next steps.
4. Loosen the capscrew and flange nut in right mower hitch (figure 34).

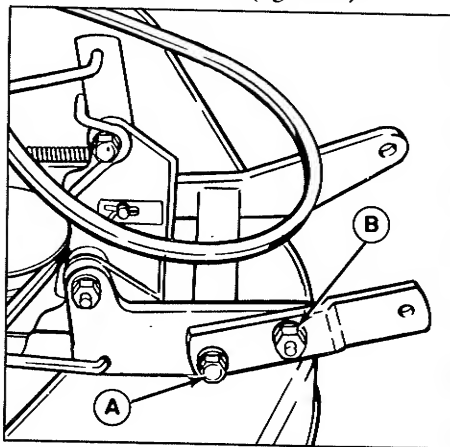


Figure 34. Mower Hitch (shown removed from tractor)

- A. Capscrew  
B. Flange Nut

5. Loosen the shoulder bolt (A, figure 35) and raise or lower mower as necessary to level it. Retighten the shoulder bolt and torque to 40 ft. lbs.
6. Retighten the capscrew (A, figure 34) and flange nut (B). Torque capscrew (A) to 50 ft. lbs. Torque nut (B) to 65 ft. lbs.
7. Check the measurement and readjust as necessary.
8. Check Mower Levelling. Front-To-Back, page 30.

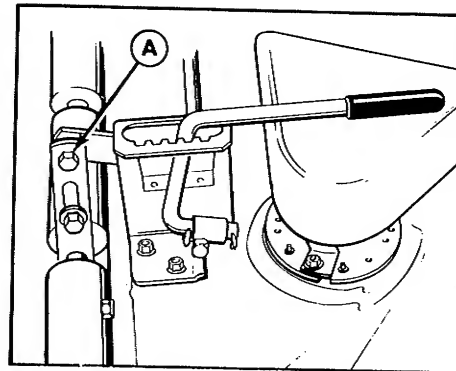


Figure 35. Shoulder Bolt

- A. Shoulder Bolt

### Mower Levelling, Front-To-Back



#### WARNING

To avoid accidental starting during levelling check, remove the ignition key and then remove spark plug wire(s) and fasten them away from the spark plug(s).

#### NOTE

Tractor and mower must be on a level surface. Check side-to-side adjustment first.

For smoothest mowing results, the mower should be adjusted so that the front tip of the center blade is 1/8 to 1/4 inch (3 to 6 mm) higher than the rear tips of the left and right blades. To check, follow these steps.

1. Place the tractor with the mower mounted on a smooth, level surface such as concrete. Place the mower in the highest cutting position, and place the mower lift lever in the lowered position.
2. Arrange the blades so that they are pointing forward and back, parallel with the tractor. Engage the mower clutch.
3. Measure the distance from the front tip of the center blade to the ground, and

note that measurement. (See figure 36).

4. Measure the distance to the ground from the rear tips of the left and right blades. Compare these measurements with the measurement from the front tip of the center blade. The front tip of the center blade should be 1/4 inch (6 mm) higher than the rear tips of the side blades (figure 36).

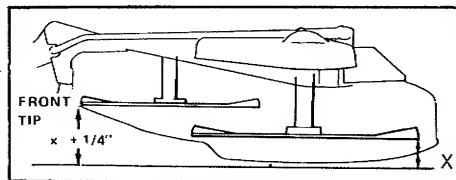


Figure 36. Levelling Mower

5. If adjustment is needed, remove the two pins (A, figure 37) by removing the cotter pins. Loosen the jam nuts (C).
6. Turn both clevises the same number of turns, shortening the bail arms to raise the front of the mower and lengthening the bail arms to lower the front of the mower. One full turn will equal about 1/8 inch.
7. Replace pins through clevises and height adjustment arm and recheck measurements. When the proper mea-

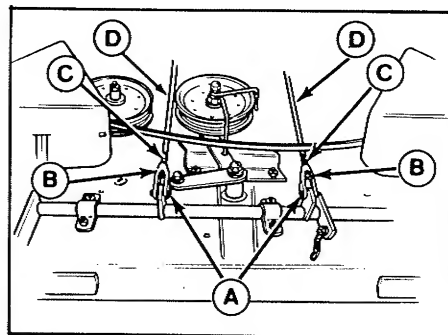


Figure 37. Turnbuckles

A. Pins

B. Clevis

C. Jam Nuts

D. Bail Arms

surement is reached, install new cotter pins through the pins and tighten the jam nuts to the turnbuckles

### LIFT LEVER ADJUSTMENT

1. Place the mower in low cut position. Using the lift lever, raise the mower.
2. Measure the distance between top of pulley cover and bottom of upstop bracket on right-hand side (figure 38).
3. If the manual lift lever is used, the measurement should be 2-13/32 inch. If

the optional electric lift is used, the measurement should be 1-13/16 inch. If adjustment is necessary, go to next step.

4. To adjust, disconnect trunnion (C, figure 39) from chain by removing clip (D). Loosen the nut, and turn trunnion to raise or lower mower. Tighten nut when measurement is correct.

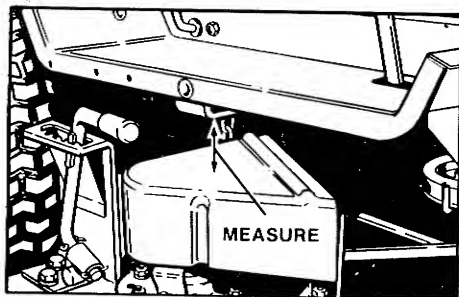


Figure 38. Measurement - Lift Lever

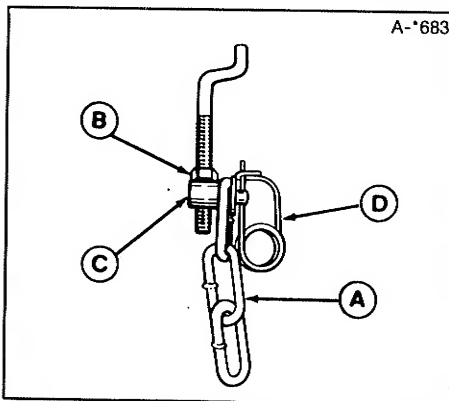


Figure 39. Lift Assembly - Large Lift Lever

- |          |             |
|----------|-------------|
| A. Chain | C. Trunnion |
| B. Nut   | D. Clip     |

### SEAT ADJUSTMENT

1. Lift up the seat from the rear.
2. Loosen the four nuts under the seat and slide the seat forward or back. Tighten the nuts firmly.
3. The springs can be moved to different holes in the deck for maximum riding comfort. A lighter person will want to move the springs more forward.

## Specifications

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### BASIC ENGINE - T811

**Make:** Briggs & Stratton - 4 cycle, air cooled  
**Model No.:** 252707; **Type:** 0131-01  
**Horsepower:** 11 @3600 rpm (8.2 kW/engine mfg. rating)  
**Cylinder:** 1 Horizontal  
**Bore:** 3.44 Inches (87.4 mm)  
**Stroke:** 2.62 Inches (66.4 mm)  
**Displacement:** 24.36 Cu. In. (395 cc)  
**Crankshaft:** Vertical Syncrobalanced  
**Battery:** 12 volt, 39 amp hr. Auto Battery  
**Governor:** Mechanical, full throttle no load setting  
3400  $\pm$  100 rpm; Idle speed setting 1750  $\pm$  100 rpm  
**Crankcase:** See Briggs & Stratton Maintenance Instructions  
for oil recommendations and crankcase capacity.

### BASIC ENGINE - T816

**Make:** Briggs & Stratton - 4 cycle, air cooled  
**Model No. T816:** 402707 **Type:** 0131

**Horsepower: T816:** 16 @3600 rpm (11.9 kW)  
(engine mfg. rating)

**Cylinders:** 2 Horizontally Opposed/Cast Iron Sleeves  
**Bore:** 3.44 Inches (87.4 mm)  
**Stroke: T816:** 2.16 inches (54.9 mm)

**Displacement: T816:** 40.15 Cu. In.

**Crankshaft:** Vertical  
**Battery:** 12 volt, 39 amp. hr. Auto Battery  
**Governor:** Mechanical, full throttle no load setting  
3400  $\pm$  100 rpm, Idle speed setting 1350  $\pm$  rpm  
**Crankcase:** See Briggs & Stratton Maintenance Instructions  
for oil recommendations and crankcase capacity.

### ENGINE - ALL MODELS

**Electrical System:** Electronic Ignition  
Unregulated 3 amps DC  
Charging Circuit and 60-100 watt AC  
Lighting Circuit, Key Start

**Starter:** 12 volt gear drive  
**Fuel Tank:** Capacity 2.2 gallons

### TRANSAXLE - ALL MODELS

**Type:** All gear, running in oil bath  
**Drive:** Belt drive to transmission  
**Speeds:** Three forward, One reverse  
**Speeds @ 3400 rpm:** Variable speed in  
each gear. See Operation  
Section.

## **CHASSIS**

**Frame:** Heavy Gauge Steel Channel

**Engine Mounting:** Above front axle

**Pivot Point Location:** Front Axle

**Tires:** Rear - 23 x 10.50 - 12

Front - 15 x 6.00 - 6

**Accessibility:** Hood tips forward, seat deck tips rearward

**Seat:** Adjustable

**Turning Radius:** (To inside rear wheel) 24 In.

## **DIMENSIONS**

**Overall Length:** 67 Inches

**Overall Width:** 37 Inches

**Height:** (To top of steering wheel) - 41.4 Inches

(To top of hood) - 32.6 In. front, 35.6 In. rear

**Wheel Base:** 48.3 Inches

**Weight: T811:** (Tractor only) - 450 lbs.

(Shipping weight w/mower) - 682 lbs.

**T816:** (Tractor only) - 485 lbs.

(Shipping w/42" mower) - 717 lbs.

(Shipping w/48" mower) - 726 lbs.

## **42" MOWER**

**Effective Cutting Width:** 42 Inches (1067 mm)

**Overall Width w/Deflector:** 57 Inches (1448 mm)

**Weight:** 112 lbs. (51 kg)

**Blade Arrangement:** Three Staggered Blades

**Mower Drive:** V-belt from tractor PTO pulley

## **48" MOWER**

**Effective Cutting Width:** 48 Inches (1219 mm)

**Overall Width w/Deflector:** 63 Inches (1.6 m)

**Weight:** 121 lbs. (55 kg)

**Cutting Height:** Adjustable

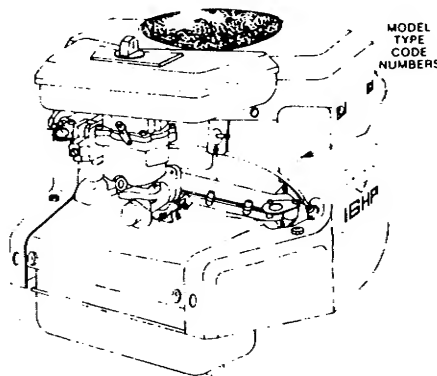
**Blade Arrangement:** Three Staggered Blades

**Mower Drive:** V-belt from tractor PTO pulley

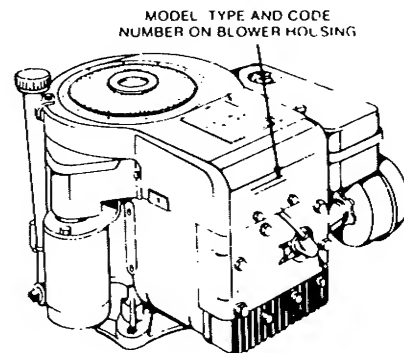
**SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE**

## Tractor Identification\_\_\_\_\_

When ordering replacement parts for your tractor, be prepared to give your dealer the identification numbers found on the tractor and engine identification plates. The identification plate for the tractor is located under the seat deck next to the shift lever. The engine I.D. plate is located as shown. The rotary mower identification plate is located on the rear-center of the mower housing. We suggest that you locate the numbers and record them here for easy reference.



16 H.P.



11 H.P.

Tractor Mfg. No. \_\_\_\_\_

Tractor Serial No. \_\_\_\_\_

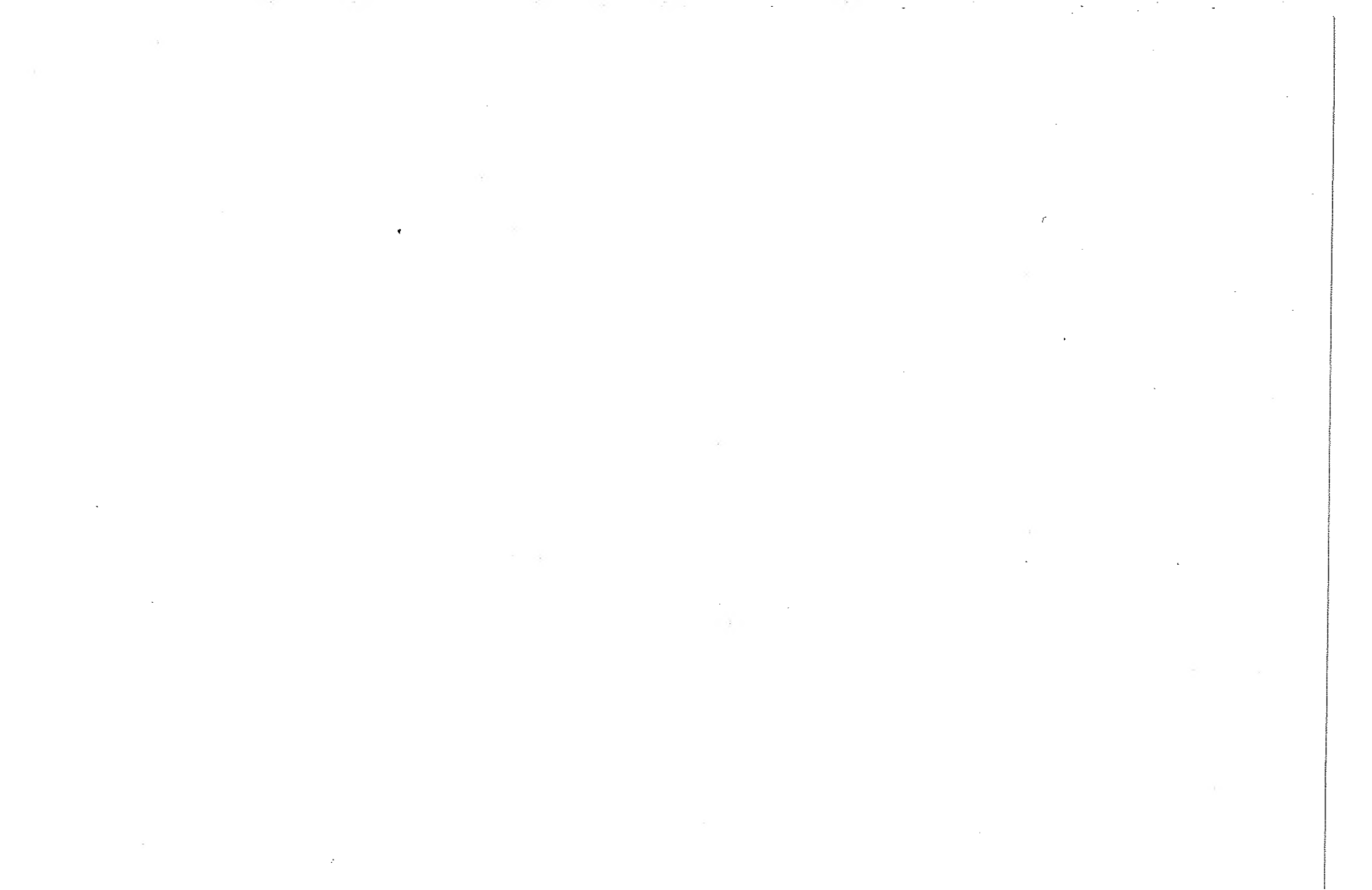
Mower Mfg. No. \_\_\_\_\_

Mower Serial No. \_\_\_\_\_

Engine I.D. \_\_\_\_\_

Type \_\_\_\_\_











Agricultural Equipment Sector  
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